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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,787	03/08/2001	Rahul Khanna	042390.P9141	8348

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EXAMINER

DAY, HERNG DER

ART UNIT	PAPER NUMBER
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2128

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/802,787

Applicant(s)

KHANNA ET AL.

Examiner

Herng-der Day

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 September 2005 and 07 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9, 10, 15-17, 19-21 and 23 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 11-14, 18, 22 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This communication is in response to Applicants' Amendment ("Amendment") to Office Action dated July 5, 2005, faxed September 1, 2005, and Applicants' Pre-Appeal Brief Request for Review to Office Action dated September 22, 2005, mailed October 5, 2005, and received by PTO October 7, 2005.

1-1. In view of the Panel Decision from Pre-Appeal Brief Review, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

1-2. Claim 5 has been amended. Claims 1-24 are pending.

1-3. Claims 1-24 have been examined.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-6, 9, 10, 15-17, 19-21, and 23 are rejected under 35 U.S.C. 102(a) as being anticipated by The FreeBSD Documentation Project (hereafter FreeBSD), "FreeBSD Architecture Handbook, Chapter 14 Newbus", August 2000, pages 194-198.

3-1. Regarding claim 1, FreeBSD discloses a method for representing a root bus of a computer system, comprising:

dynamically generating (dynamic attaching. Page 195, the first line) an object-oriented abstraction (Newbus is the implementation of a new architecture based on abstraction layers. Page 194, the last paragraph) corresponding to the root bus (a device tree lay-out. Page 195, line 4) referencing to one or more methods that may be implemented to obtain and/or generate configuration and resource allocation information for the root bus and any subordinate busses connected either directly or indirectly to the root bus (Each device in the system has a table of methods which it supports. The system and other devices uses those methods to control the device and request services. Page 195, the last paragraph); and

registering the methods referenced in the object-oriented abstraction via a data structure stored in memory of the computer system (When a device is attached to a driver during auto-configuration, it uses the method table declared by the driver. The interface would be stored in a methods file. Page 196, paragraphs 1-2).

**3-2.** Regarding claim 2, FreeBSD further discloses wherein the object-oriented abstraction comprises one of a C++ object or Java object (an extensible “object-based programming” model. Page 195, the last paragraph).

**3-3.** Regarding claim 3, FreeBSD further discloses wherein the root bus comprises a PCI bus (host-to-PCI bridges (suggests a PCI root bus). Page 195, lines 5-8).

**3-4.** Regarding claim 4, FreeBSD further discloses comprising enumerating the root bus and said any subordinate busses through use of the methods that are registered (A device\_state\_t type, which is an enumeration, device\_state. Page 197, lines 26-27).

**3-5.** Regarding claim 5, FreeBSD further discloses wherein the object-oriented abstraction includes at least one variable for storing information, further comprising storing configuration

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information derived during enumeration of the root bus into said at least one variable (the nexus is the only part of the Newbus system which knows about all resources. Page 195, lines 17-18).

3-6. Regarding claim 6, FreeBSD further discloses comprising allocating resources for the root bus, each subordinate bus, and any devices attached to those root and subordinate busses (resource allocation mechanism. Page 195, lines 33-34); and

storing information corresponding to resources that are allocated in said at least one variable for storing information (the nexus is the only part of the Newbus system which knows about all resources. Page 195, lines 17-18).

3-7. Regarding claim 9, FreeBSD discloses a method for defining resource configuration information in a system that includes a plurality of root busses, comprising:

identifying each of the plurality of root busses (host-to-PCI bridges (suggests PCI root buses). Page 195, lines 5-8);

defining an object oriented representation of each root bus (an extensible “object-based programming” model. Page 195, the last paragraph) comprising a set of components (a device tree lay-out. Page 195, line 4) that includes references to a plurality of methods that may be implemented to obtain and/or generate configuration and resource allocation information for that root bus and any subordinate busses connected either directly or indirectly to the root bus (Each device in the system has a table of methods which it supports. The system and other devices uses those methods to control the device and request services. Page 195, the last paragraph);

assigning a bus identifier for each of the subordinate busses (a device tree lay-out (suggests individually identifiable device/bus). Page 195, line 4) through use of an enumeration process that implements one or more of the methods referenced by the object oriented

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representation of that root bus (When a device is attached to a driver during auto-configuration, it uses the method table declared by the driver. Page 196, paragraph 1).

wherein each of the foregoing operations is performed via execution of machine-executable instructions by the system (The system and other devices uses those methods to control the device and request services. Page 195, the last paragraph).

**3-8.** Regarding claim 10, FreeBSD further discloses wherein the object oriented representation includes a globally unique identifier (GUID) for each root bus (a device tree layout (suggests individually identifiable device/bus, i.e., GUID). Page 195, line 4).

**3-9.** Regarding claim 15, FreeBSD further discloses comprising:

determining resource requirements for each subordinate bus; allocating the resource requirements for that subordinate bus (asks its parent to map its resources. Page 195, lines 17-18); and

setting resources for that subordinate bus (a resource is allocated. Page 195, lines 33-34).

**3-10.** Regarding claim 16, FreeBSD further discloses wherein at least one of the subordinate busses for a given root bus has a peripheral device connected to it, and further wherein determining the resource requirements for each subordinate bus includes determining the resource requirements of any peripheral devices attached to that subordinate bus (Each device in the Newbus architecture asks its parent to map its resources. Page 195, lines 17-18).

**3-11.** Regarding claim 17, FreeBSD further discloses comprising:

allocating resources for each root bus based in part on the resources of its subordinate busses; and setting the resources for that root bus (a resource is allocated. Page 195, lines 33-34).

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**3-12.** Regarding claim 19, this article of manufacture claim includes equivalent method limitations as in claim 1 and is anticipated using the same analysis of claim 1.

**3-13.** Regarding claim 20, FreeBSD further discloses wherein the computer- executable instructions comprises one or more software modules including a root bus driver (When a device is attached to a driver during auto-configuration, it uses the method table declared by the driver. Page 196, paragraph 1).

**3-14.** Regarding claim 21, FreeBSD further discloses wherein execution of the instructions further performs the function of assigning a bus identifier for each of the subordinate busses (a device tree lay-out (suggests individually identifiable device/bus). Page 195, line 4) through use of an enumeration process that implements one or more of the methods referenced by the object oriented abstraction of that root bus (When a device is attached to a driver during auto-configuration, it uses the method table declared by the driver. Page 196, paragraph 1).

**3-15.** Regarding claim 23, FreeBSD further discloses wherein execution of the instructions further performs the functions of:

determining resource requirements for each subordinate bus; allocating the resource requirements for that subordinate bus (asks its parent to map its resources. Page 195, lines 17-18); and

assigning the resources that are allocated to the root bus that is a parent of that subordinate (a resource is allocated. Page 195, lines 33-34).

***Allowable Subject Matter***

4. Claims 7, 8, 11-14, 18, 22, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Applicants' Arguments***

5. Applicants argue the following:

(1) "Claim 5 is amended, as shown above, to correct the antecedent basis problem (page 8, paragraph 2, Amendment).

(2) The combination of Furner and Dinallo does not teach or suggest all of the elements and limitations recited in the independent claims (pages 8-15, Amendment).

***Response to Arguments***

6. Applicants' arguments have been fully considered.

6-1. Applicants' argument (1) is persuasive. The rejections of claims 5-6 under 35 U.S.C. 112, second paragraph, in Office Action dated July 5, 2005, have been withdrawn.

6-2. Applicants' argument (2) is persuasive. Therefore, the rejections of claims 1-24 under 35 U.S.C. 103(a), in Office Action dated June 5, 2005, have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as detailed in sections 3 to 3-15 above.



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***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day  
January 31, 2006

*H.D.*

*Thaiphon  
Thai Phan  
Patent Examiner  
Au: 2128*